

# UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.

51810-1050

First Named Inventor or Application Identifier

Thomas L. Rainey

Title

Segmental Retaining Wall

Express Mail Label No.

EL068409990US

## APPLICATION ELEMENTS

See MPEP Chapter 600 concerning utility patent application contents

## ADDRESS TO:

Assistant Commissioner for Patents  
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1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)  
(Submit an original, and a duplicate for fee processing)
2. ☒ Specification [Total Pages **16**]  
(preferred arrangement set forth below)
  - Descriptive title of the Invention
  - Cross References to Related Applications
  - Statement Regarding Fed sponsored R&D
  - Reference to Microfiche Appendix
  - Background of the Invention
  - Brief Summary of the Invention
  - Brief Description of the Drawings (if filed)
  - Detailed Description
  - Claim(s)
  - Abstract of the Disclosure
3. ☒ Drawing(s) (35 USC d113) [Total Sheets **6**]
4. Oath or Declaration [Total Pages **7**]
  - a. ☒ Newly Executed (original or copy)
  - b. ☐ Copy from a prior application (37 CFR §1.63(d))  
(for continuation/divisional with Box 17 completed)  
**[Note Box 5 below]**
  - i. ☐ **DELETION OF INVENTOR(S)**  
Signed statement attached deleting inventor(s)  
named in the prior application,  
see 37 CFR §1.63(d)(2) and 1.33(b).
5. ☐ Incorporation By Reference (useable if Box 4b is checked)  
The entire disclosure of the prior application, from which a copy of  
the oath or declaration is supplied under Box 4b, is considered as  
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6. ☐ Microfiche Computer Program (Appendix)
7. Nucleotide and/or Amino Acid Sequence Submission  
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  - a. ☐ Computer Readable Copy
  - b. ☐ Paper Copy (identical to computer copy)
  - c. ☐ Statement verifying identical of above copies

## ACCOMPANYING APPLICATION PARTS

8. ☐ Assignment Papers (cover sheet & Documents(s))
9. ☐ 37 CFR §3.73(b) Statement (when there is an assignee) ☒ Power of Attorney
10. ☐ English Translation Document (if applicable)
11. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
12. ☐ Preliminary Amendment
13. ☒ Return Receipt Postcard (MPEP 503)  
(Should be specifically itemized)
14. ☒ Small Entity Statement(s) ☐ Statement filed in prior application  
Status still proper and desired  
(PTO/SB/09-12)
15. ☐ Certified Copy of Priority Document(s)  
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16. ☐ Other: \_\_\_\_\_

\* A new statement is required to be entitled to pay small entity fees, except where one has been filed in a prior application and is being relied upon.

17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information below and in a preliminary amendment:

☐ Continuation ☐ Divisional ☒ Continuation-in-part (CIP) of prior application No: 09/261,420.  
Prior application information: Examiner Not Yet Assigned Group / Art Unit: 3635

## 18. CORRESPONDENCE ADDRESS

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or ☒ Correspondence address below

NAME	David R. Risley Thomas, Kayden, Horstemeyer & Risley, L.L.P.		
ADDRESS	100 Galleria Parkway Suite 1500		
CITY	Atlanta	STATE	Georgia
COUNTRY	U.S.A.	TELEPHONE	770-933-9500
		ZIP CODE	30339-5948
		FAX	770-951-0931

Name (Print/Type)	David R. Risley	Registration No. (Attorney/Agent)	39,345
Signature	<i>David R. Risley</i>	Date	6/24/99

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**PATENT**

Attorney's Docket No. 51810-1040

Applicant or Patentee: Thomas L. Rainey  
Serial or Patent No.: Not Yet Assigned  
Filed or Issued: Herewith  
For: **RETAINING WALL ANCHORING SYSTEM**

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY  
STATUS (37 CFR 1.9(f) and 1.27(b))—INDEPENDENT INVENTOR**

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled

**RETAINING WALL ANCHORING SYSTEM**

described in

- ☒ the specification filed herewith.
- ☐ application serial no. \_\_\_\_\_, filed \_\_\_\_\_.
- ☐ patent no. \_\_\_\_\_, issued \_\_\_\_\_.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ no such person, concern, or organization
- ☐ persons, concerns, or organizations listed below\*

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FULL NAME: N/A

ADDRESS: \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME: N/A

ADDRESS: \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME: N/A

ADDRESS: \_\_\_\_\_

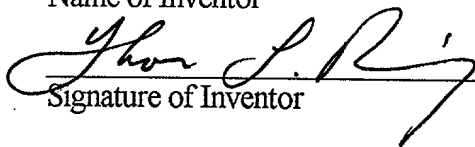
☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Thomas L. Rainey

Name of Inventor

  
Signature of Inventor

Date 2/26/99

664499-20000000

TO ALL WHOM IT MAY CONCERN

Be it known that Thomas L. Rainey of 3275 Kates Way, Duluth, Gwinnett County, Georgia 30155, a citizen of the United States of America, has invented a certain new and useful improvement in a

**SEGMENTAL RETAINING WALL SYSTEM**

of which the following is a specification.

EXPRESS MAIL

I hereby certify that this correspondence is being deposited with the United States Postal Service as "Express Mail Post Office To Addressee," in an envelope addressed to: Assistant Commissioner of Patents, Box Patent Application, Washington, D.C. 20231 on

June 24, 1999.

Signature: Allison M. Olson

Express Mail No. E106840999DUS

664499-2476660

## **SEGMENTAL RETAINING WALL SYSTEM**

### **CROSS-REFERENCE TO RELATED APPLICATION**

This is a continuation-in-part of U.S. Patent Application Serial No. 09/049,627, filed  
5 March 27, 1998.

### **FIELD OF THE INVENTION**

The invention relates generally to earth retaining walls. More particularly, the  
invention relates to a segmental retaining wall system comprising retaining means for  
10 attaching reinforcement members to the retaining wall.

### **BACKGROUND OF THE INVENTION**

Segmental retaining walls commonly are used for architectural and site  
development applications. Such walls are subjected to very high pressures exerted by  
15 lateral movements of the soil, temperature and shrinkage effects, and seismic loads.  
Therefore, the wall is often tied into the backfill soil, typically with tensile reinforcement  
members. Usually, elongated structures, commonly referred to as geogrids or  
reinforcement fabrics, are used to provide this reinforcement. Geogrids often are  
configured in a lattice arrangement and are constructed of a metal or plastic, while

reinforcement fabrics are constructed of a woven or nonwoven polymer fibers or plastics. These reinforcement members typically extend rearwardly from the wall and into the soil to stabilize the soil against movement and thereby create a more stable soil mass which results in a more structurally secure retaining wall.

5           Although several different forms of reinforcement members have been developed, difficulties remain with respect to attachment of the members to retaining walls. In particular, the reinforcement members can shift out of position and be pulled away from the retaining wall due to movement of the soil. This difficulty especially can be problematic in areas of high seismic activity where a poorly secured gravity wall can  
10   topple. In response to this problem, several current retaining wall systems have been developed to retain geogrid reinforcement members. In one such system, rake shaped connector bars are positioned transversely in the center of the contact area between adjacent stacked blocks with the prongs of the connector bars extending through elongated apertures provided in the geogrid to retain it in place. Despite adequately  
15   holding the geogrid in position under normal conditions, this system of attachment provides a substantial drawback. Specifically, the geogrids of this system only extend along the back halves of the contact areas between the blocks. Although the geogrids are relatively thin, this partial insertion of the geogrids can cause the retaining wall to bow outwardly due to the aggregate thickness of the geogrids. As can be appreciated, this  
20   outward bowing can be substantial with tall retaining walls that require a multiplicity of geogrids. Aside from creating the impression of instability, this condition increases the likelihood of wall failure, particularly in response to seismic activity.

From the above, it can be appreciated that it would be desirable to have a mechanically stable wall system having secure retaining means for maintaining connection of reinforcement members to the retaining wall.

5

### **SUMMARY OF THE INVENTION**

Briefly described, the present invention relates to a segmental retaining wall system. This system comprises a plurality of wall blocks. Each wall block comprise an interior face for forming an interior surface of a segmental retaining wall, an exterior face for forming an exterior surface of the segmental retaining wall, first and second sides that extend from said exterior face to said interior face, a top surface, and a bottom surface. In addition, the wall block includes retaining means for retaining a reinforcement member to the segmental retaining wall. In one arrangement, these retaining means comprises a channel that is defined by a front wall, a rear wall, and a channel bottom surface. This channel is provided in one of the faces and surfaces of the block, and preferably includes at least one inwardly extending shoulder.

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The objects, features, and advantages of this invention will become apparent upon reading the following specification, when taken in conjunction with the accompanying drawings.

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### **BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a perspective view of a retaining wall formed in accordance with the present invention.

FIG. 2 is a perspective front view of a wall block used in the wall shown in Fig. 1.

FIG. 3 is a perspective rear view of the wall block shown in Fig. 2.

FIG. 4 is a detail view of a channel provided in a top surface of a wall block.

FIG. 5 is a detail view of a flange provided on a bottom surface of a wall block.

FIG. 6 is a side view of a reinforcement member retaining bar.

5        FIG. 7 is a partial side view of a wall block depicting insertion of the retaining bar shown in Fig. 6 over a reinforcement member within a channel of the wall block.

FIG. 8 is a cross-sectional side view of a retaining wall constructed in accordance with the present invention.

FIG. 9 is a detail view showing the retention of a reinforcement member between  
10    adjacent stacked wall blocks.

### **DETAILED DESCRIPTION**

Referring now in more detail to the drawings, in which like numerals indicate corresponding parts throughout the several views, Fig. 1 illustrates the general concept of a  
15    segmental gravity retaining wall 10 constructed in accordance with the present invention. As depicted in this figure, the retaining wall 10 comprises a plurality of wall blocks 12 that are stacked atop each other in ascending courses 14. When stacked in this manner, the wall blocks 12 together form an exterior or decorative surface 15 which faces outwardly away from the soil, and an interior surface 17 which faces inwardly toward the soil.

20        Generally speaking, the wall blocks 12 are substantially identical in size and shape for ease of block fabrication and wall construction. Accordingly, each block 12 typically is configured so as to mate with vertically adjacent blocks when the blocks are stacked atop one another to form the retaining wall 10. Referring to Figs. 2 and 3, each wall block 12 comprises



an exterior face 24, an opposed interior face 26, a top surface 28, a bottom surface 30, and two opposed sides 32. Because the exterior faces 24 of the blocks 12 form the exterior surface 15 of the retaining wall 10, the exterior faces typically are provided with an ornamental texture or facing to create a visually pleasing facade. Also, the exterior face 24 of each wall block 12 is preferably sloped inwardly from the bottom surface 30 to the top surface 28 in an incline ratio of approximately 30 to 1. This inward slope of each block exterior surface 15 creates an aggregate inward slope effect over the entire retaining wall 10 which counteracts the outward leaning impression commonly created by such walls when viewed by the observer. Contrary to the exterior faces 24, the interior faces 26 of the wall blocks 12 normally are configured in an upright or vertical orientation and, therefore, form an upright interior surface 17 of the retaining wall 10.

The top and bottom surfaces 28 and 30 of each block 12 typically are parallel to each other so that, when stacked on top of one another, an upright wall 10 is formed. Similarly, the opposed sides 32 typically are parallel to each other. However, the opposed sides 32 can be inwardly or outwardly tapered from the exterior face 24 of the block 12 to the interior face 26 of the block to form curved walls of nearly any shape. Preferably, the wall blocks 12 further include interior openings 34 which reduce the amount of concrete or other materials needed to fabricate the blocks and reduce the weight of the blocks to simplify wall construction. Although depicted in the figures as being arranged in a horizontal orientation, these openings could be arranged in a vertical orientation, if desired.

As mentioned above, the wall blocks 12 typically comprise retaining means for attaching reinforcement members (*e.g.*, geogrid) to the retaining wall 10. These retaining means include a channel 16. Typically, each block 12 has a channel 16 provided in its top

surface 28, although alternative placement is feasible. By way of example, the channel 16 alternatively could be provided in the bottom surface 30 or the interior face 26 of the wall block 12. When provided in the interior face 26 of the block 12, the channel 16 can be arranged either horizontally or vertically therein, although horizontal placement is preferred.

- 5 When the channel 16 is provided in the top surface 28, however, the channel normally extends transversely across the block 12 from one side 32 of the block to the other, usually parallel to the exterior surface 15 of the block 12. As illustrated in Fig. 4, the channel 16 is defined by a front wall 36, a rear wall 38, and a channel bottom surface 40. The front wall 36 can include a shoulder 42 that extends inwardly toward the interior face 26 of the wall block 12. In a  
10 preferred embodiment, the shoulder 42 is arranged as a curved lip such that the channel comprises a first substantially arcuate edge 44.

Positioned opposite the front wall 36, the rear wall 38 of the channel 16 preferably similarly includes an inwardly extending shoulder 45. The rear wall shoulder 45 preferably is arranged as a curved lip so as to form a second substantially arcuate edge 46 of the channel 16.

- 15 Although the shoulders 42, 45 have been described herein as being arranged as curved lips, it will be apparent from the present disclosure that these shoulders alternatively could be arranged as inwardly extending flanges or other such protrusions. Furthermore, depending upon the particular implements used to retain the reinforcement members, the placement of the channel 16, and the degree of block-to-block locking desired, the walls 36, 38 can be formed without  
20 such shoulders 42, 45 to simplify block construction. For example, if the channel 16 is not used to facilitate block-to-block locking, the front wall 36 can be substantially planar in shape in that it does not serve the retaining function that the rear wall 38 serves (see Fig. 9).

Where block-to-block locking is desired, the front wall 36 typically includes a shoulder

42 that is adapted to receive a flange 18 that extends from the block 12. In a preferred embodiment, the flange 18 is provided on the bottom surface 30 of the block 12 and, like the channel 16, extends transversely from one side 32 of the block to the other side 32. As is illustrated in Fig. 5, the flange 18 is defined by a front surface 48, a rear surface 50, and a top surface 52. Both the front surface 48 and the rear surface 50 extend toward the exterior face 24 of the wall block 12 such that the entire flange 18 extends towards the exterior face 24 of the block. To provide for the interlocking between vertically adjacent wall blocks 12, the blocks can be placed on top of lower wall blocks 12 such that the flanges 18 extend into the channels 16. Once so situated, the upper wall blocks can be urged forwardly along the lower blocks so that the front surfaces 48 of the flanges 18 abut the front walls 36 of the channels 16. This abutment prevents the block from leaning forward or toppling. As is known in the art, alternative locking means can be used such as pin and cavity, protrusion and cavity, mating/aligning systems. Example systems include these of U.S. Patent Nos. 4,914,876, 5,257,880, 5,607,262, and 5,827,015.

The retaining means of the disclosed system typically further include a reinforcement member retaining bar 22, shown most clearly in Fig. 6. As indicated in this figure, the retaining bar 22 specifically is sized and configured to fit within the channel 16. In a preferred arrangement, the retaining bar 22 has a plurality of different surfaces: a top surface 54, a bottom surface 56, a first upright surface 58, a second upright surface 60, a first oblique surface 62, and a second oblique surface 64. Normally, the top surface 54 and the bottom surface 56 are parallel to each other as are the first oblique surface 62 and the second oblique surface 64. Similarly, the first upright surface 58 and the second upright surface 60 typically are parallel to each other such that the first upright surface extends perpendicularly from the

top surface 54 and the second upright surface extends perpendicularly from the bottom surface 56. Configured in this manner, the retaining bar 22 can be positioned on top of a reinforcement member 20 in the channels 16 by inserting the retaining bar into the channels with the second upright surface 60 forward, and twisting the bar downwardly into place as depicted in Fig. 7.

- 5 In that the bar 22 is designed to fit closely between the front and rear walls 36 and 38 of the channels 16 when in place, a longitudinal notch 46 is provided in the channel 16 to accommodate the second upright surface 60 during the twisting and downward insertion of the bar.

Once correctly inserted within the channel 16, the first upright surface 58 and the  
 10 second oblique surface 64 of the retaining bar 22 hold the reinforcement member 20 against the front and rear walls 36 and 38 of the channel, respectively, as shown in Fig. 7. In embodiments in which the flange 18 is not provided, the channel 16 can have a relatively shallow depth dimension. The retaining bar 22 prevents the reinforcement member 20 from being pulled out from the retaining wall 10. Specifically, when a tensile force is applied to the reinforcement  
 15 member 20 from the soil side of the retaining wall 10, the retaining bar 22 is rotated within the channel 16 to cause the reinforcement member to be clamped by member 20 to the sides of the channel, locking the reinforcement member in place. In that the amount of pressure that is applied on the retaining bar 22 is not large, the retaining bar can be constructed of a polymeric material such as nylon 6,6 or high density polyethylene. Use of such a polymeric material  
 20 provides the additional advantage of providing for a lightweight, inert retaining bar.

The system of the present invention can be used to construct any number of different configurations of segmental retaining walls. Fig. 8 illustrates one example of such a retaining wall 66. To construct such a wall 66, a leveling pad 68 is laid to provide a foundation upon

which to build the wall. Typically, this leveling pad 68 comprises a layer of compacted, crushed stone that is embedded under the soil to protect the wall foundation. Once the leveling pad 68 is laid and compacted, a plurality of starting blocks 70 are aligned along the length of the pad. Each of the starting blocks 70 is provided with a channel in its top surface. However, since there are no lower courses with which to engage, the starter blocks 70 are not provided with flanges, or existing flanges on the block can be broken off with a hammer. Additionally, special starting blocks (if used) can be relatively short in height, typically being approximately half as tall as the wall blocks. Although such starting blocks 70 typically are used in the starting course of the retaining wall, it is to be noted that the standard wall blocks 12 could be used to form this course, if desired.

After the starting course has been formed with either the starting blocks 70 or wall blocks 12, the next course of blocks can be laid. The wall blocks 12 are placed on top of the blocks of the starting course with the flanges 18, if provided, extending into the channels 16 of the lower blocks. As can be appreciated from Fig. 8, and with reference to Figs. 4 and 5, the front surfaces 48 of the flanges mate with the front wall shoulders 42 of the channels 16 such that each flange 18 extends underneath the shoulders. This mating relationship holds the wall block 12 in place atop the lower blocks and prevents the wall block from tipping forward, thereby providing integral locking means for the block.

Once the first wall course has been formed atop the starting course, backfill soil, S, can be placed behind the blocks 12. Typically, a non-woven filter fabric 72 is provided between the wall 66 and the backfill soils to prevent the introduction of particulate matter between the courses of blocks due to water migration within the soil. Alternatively, a layer of gravel aggregate can be provided between the wall and the soil to serve the same function. Additional

ascending courses thereafter are laid in the manner described above. Although alternative configurations are possible, a reinforcement member 20 typically is laid between every other course of blocks 12 as indicated in Fig. 8. It will be appreciated, however, that greater or fewer reinforcement members 20 can be provided depending upon the particular reinforcement needs of the construction site. Preferably, these reinforcement members 20 are composed of a flexible polymeric fabric. As described above, the reinforcement members 20 are positioned so that they extend from the exterior surface 15 of the retaining wall, into the channel 16, and past the exterior surface 17 of the retaining wall to extend into the soil. As shown most clearly in Fig. 9, a reinforcement member retaining bar 22 is placed on top of the reinforcement member 20 in the channel 16. When the next course of blocks 12 is laid on top of the lower course, the flange 18 of the upper blocks extends into the channel 16 adjacent the retaining bar.

Construction of the retaining wall 66 continues in this manner until the desired height is attained. As indicated in Fig. 8, the inward slope of the wall blocks 12 creates a net inward slope of the retaining wall. Additionally, the configuration the blocks 12 creates an aesthetically pleasing stepped appearance for the exterior surface of the wall 66. Where the full height of a wall block 12 is unnecessary or not desired, short wall blocks 74 can be used to form the top course. Typically, these short wall blocks 74 are approximately half the height of the standard wall blocks 12. Once the retaining wall 66 has been raised to the required height, cap blocks 76 can be used to complete the wall. As shown in Fig. 8, these cap blocks 76 can be provided with a flange 18, but do not have an upper channel in that further construction will not be conducted. Normally, the cap blocks 76 are fixed in position with concrete adhesive and the top surface of the cap blocks are provided with an ornamental pattern similar to the exterior faces of the blocks. The cap block 76 is designed to extend out over the lower block

to provide a lip for aesthetics. Additionally, a subsurface collector drain 78 can be provided within the backfill soil to remove excess water collected therein.

While preferred embodiments of the invention have been disclosed in detail in the foregoing description and drawings, it will be understood by those skilled in the art that  
5 variations and modifications thereof can be made without departing from the spirit and scope of the invention as set forth in the following claims. For instance, although particular block configurations have been identified herein, persons having ordinary skill in the art will appreciate that the concepts disclosed herein, in particular the retaining means described herein, are applicable to prior and future wall block designs.

**CLAIMS**

1. A wall block for use in a segmental retaining wall system, said wall block comprising:

an interior face for forming an interior surface of a segmental retaining wall;

5 an exterior face for forming an exterior surface of the segmental retaining wall;

first and second sides that extend from said exterior face to said interior face;

a top surface and a bottom surface; and

a channel defined by a front wall, a rear wall, and a channel bottom surface and extending across one of said faces and surfaces, said rear wall including an inwardly

10 extending shoulder.

2. The wall block of claim 1, wherein said channel is formed in said top surface of said wall block.

15 3. The wall block of claim 2, wherein said channel extends transversely across said top surface from said first side to said second side of said wall block.

4. The wall block of claim 1, wherein said rear wall shoulder is formed as a curved lip.

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5. The wall block of claim 1, wherein said channel is adapted to receive a reinforcement member retaining bar.



6. The wall block of claim 1, wherein said front wall of said channel includes an inwardly extending shoulder.

7. The wall block of claim 6, wherein said front wall shoulder is formed as a curved lip.

8. The wall block of claim 1, further comprising a flange that is sized and configured so as to mate with a channel of another of said blocks.

9. The wall block of claim 8, wherein said flange is provided on said bottom surface of said wall block.

10. The wall block of claim 1, wherein said wall block is formed of a concrete material.

11. A wall block for use in a segmental retaining wall system, said wall block comprising:

an interior face for forming an interior surface of a segmental retaining wall;

an exterior face for forming an exterior surface of the segmental retaining wall;

5 first and second sides that extend from said exterior face to said interior face;

a top surface and a bottom surface; and

retaining means for retaining a reinforcement member to a retaining wall, said retaining means being integrally formed in said wall block

10 12. The wall block of claim 11, wherein said retaining means comprises a channel defined that extends across one of said faces and surfaces and a retaining bar that is sized and configured to fit within said channel.

13. The wall block of claim 12, wherein said channel extends transversely across  
15 said top surface from said first side to said second side of said wall block.

14. The wall block of claim 12, wherein said channel is defined by a front wall, rear wall and a channel bottom surface, said rear wall including an inwardly extending shoulder.

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15. The wall block of claim 14, wherein said rear wall shoulder is formed as a curved lip.

16. The wall block of claim 11, wherein said wall block is formed of a concrete material.

5           17. A method for forming a segmental retaining wall, said method comprising the steps of:

          stacking a plurality of wall blocks in aligned courses, a plurality of said wall blocks having a channel formed therein; and

          securing at least one reinforcement member to the wall with a retaining bar that  
10 overlaps the reinforcement member within the channel;

          wherein the retaining bar secures the reinforcement member to the wall when tensile forces are imposed upon the reinforcement member.

**ABSTRACT**

A segmental retaining wall system comprising a plurality of wall blocks. Each wall block comprises an interior face for forming an interior surface of a segmental retaining wall, an exterior face for forming an exterior surface of the segmental retaining wall, first  
5 and second sides that extend from said exterior face to said interior face, a top surface, and a bottom surface. In addition, a plurality of wall blocks include retaining means for retaining a reinforcement member to the segmental retaining wall. In one arrangement, these retaining means comprise a channel that is defined by a front wall, a rear wall, and a channel bottom surface. This channel is provided in one of the faces and surfaces, and  
10 includes an inwardly extending shoulder.

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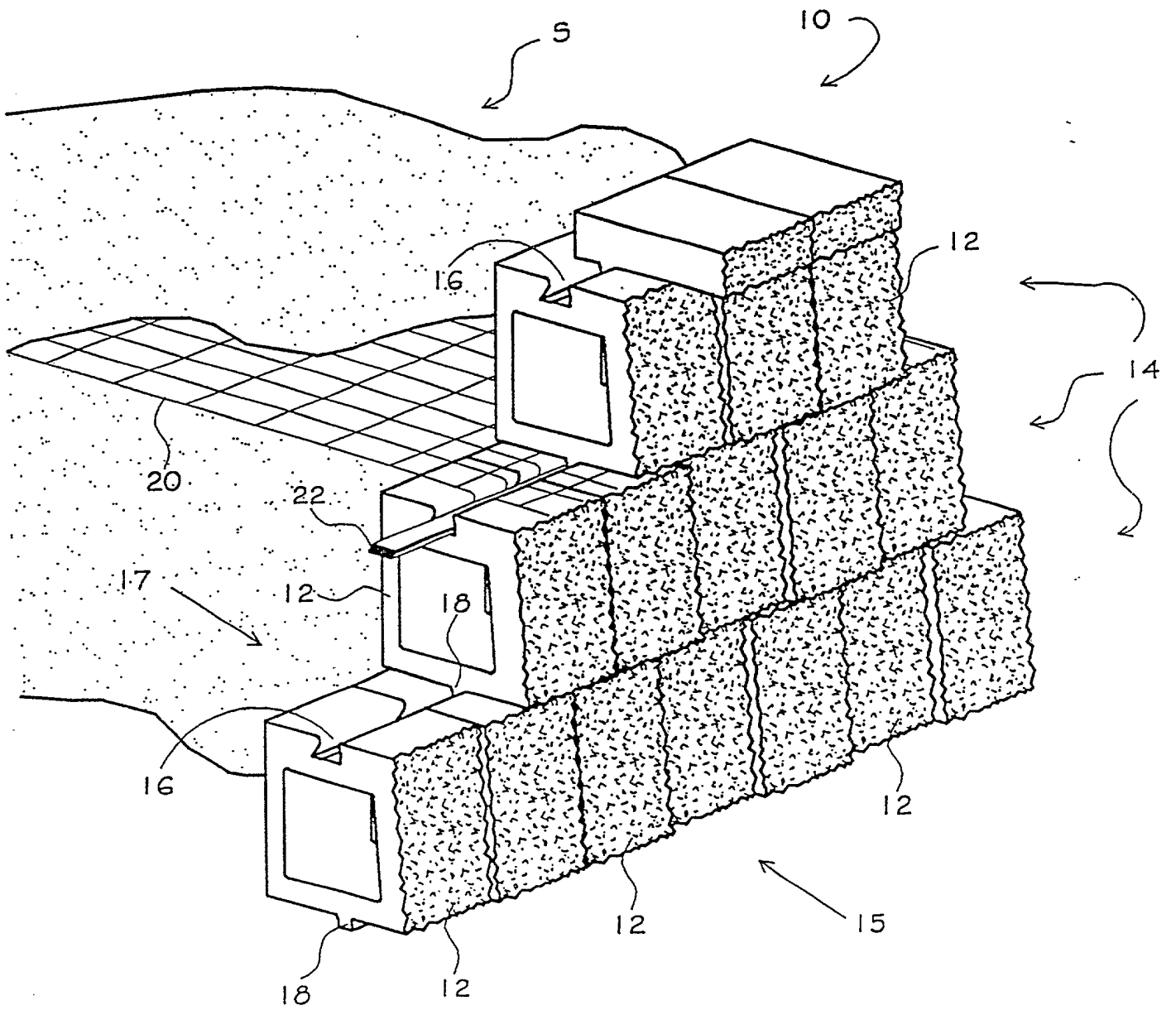


FIG. 1

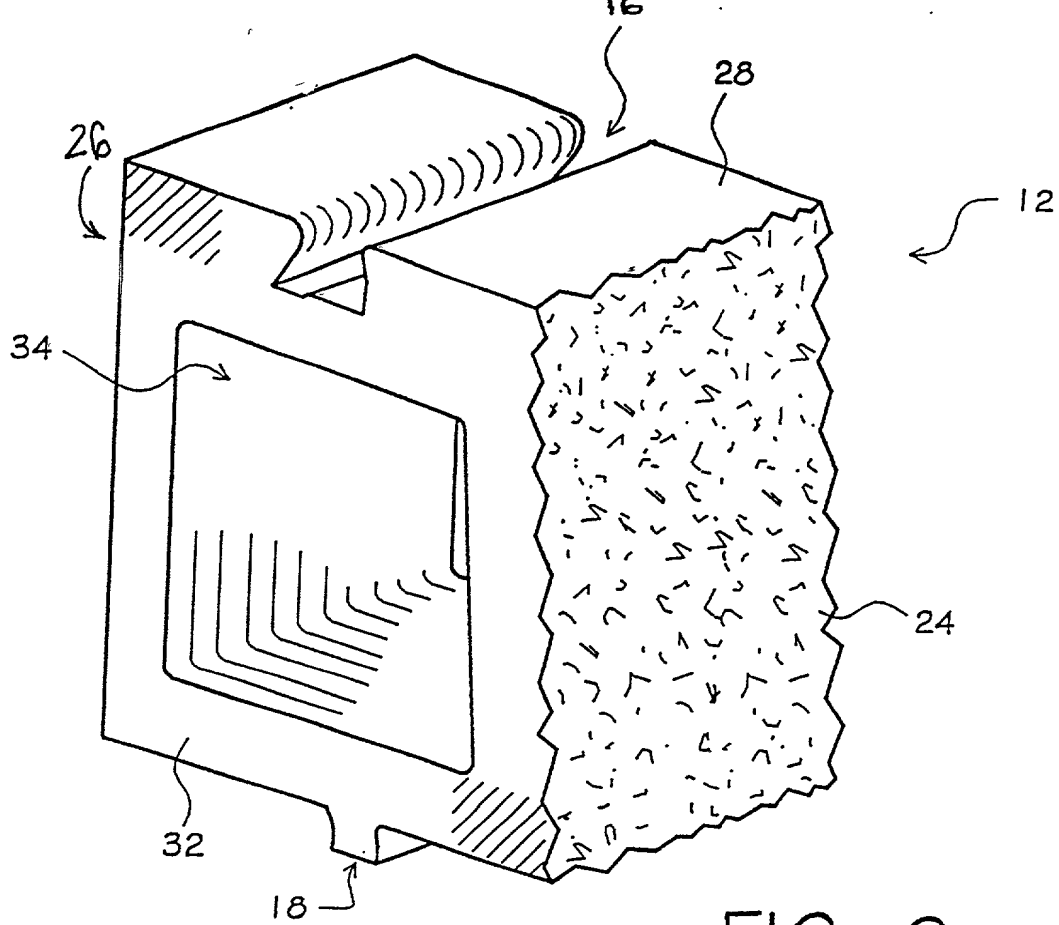


FIG. 2

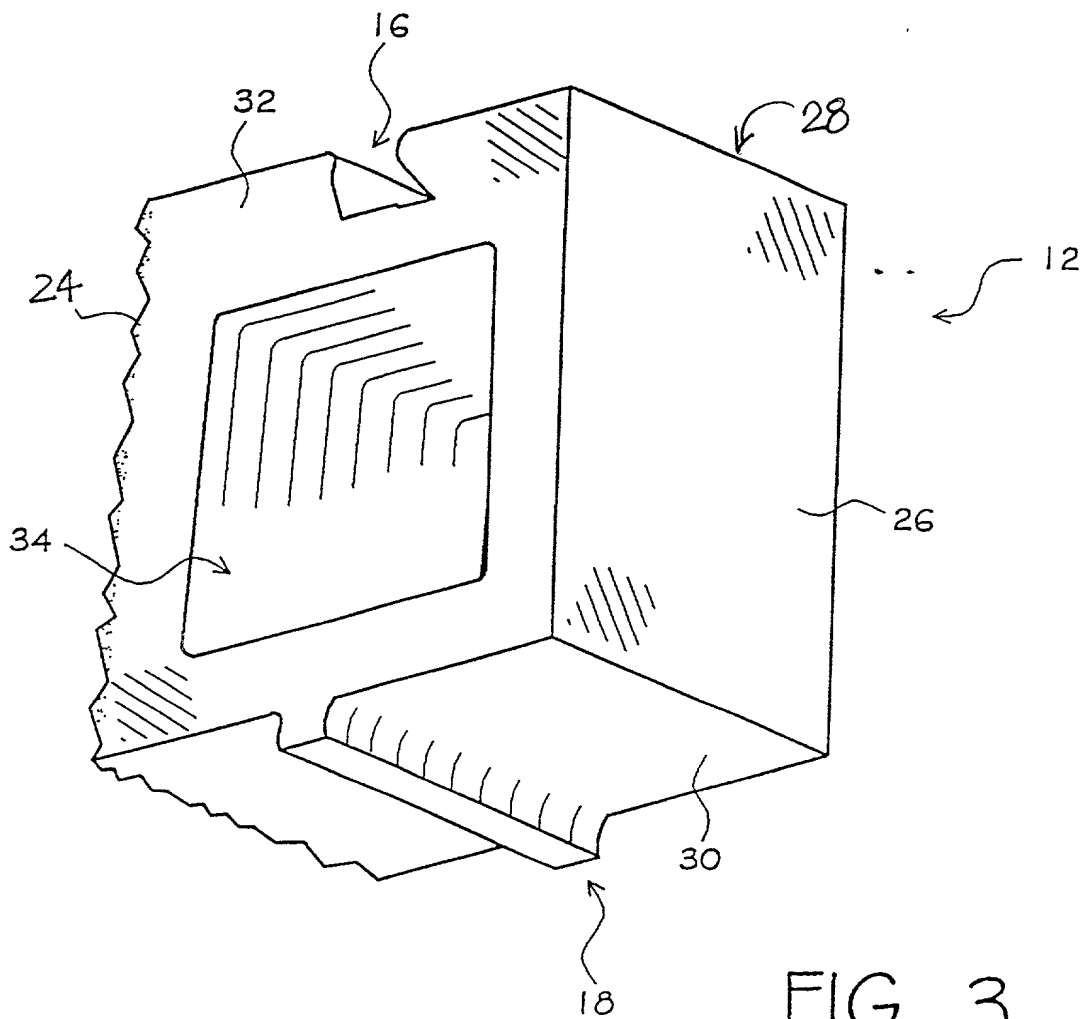
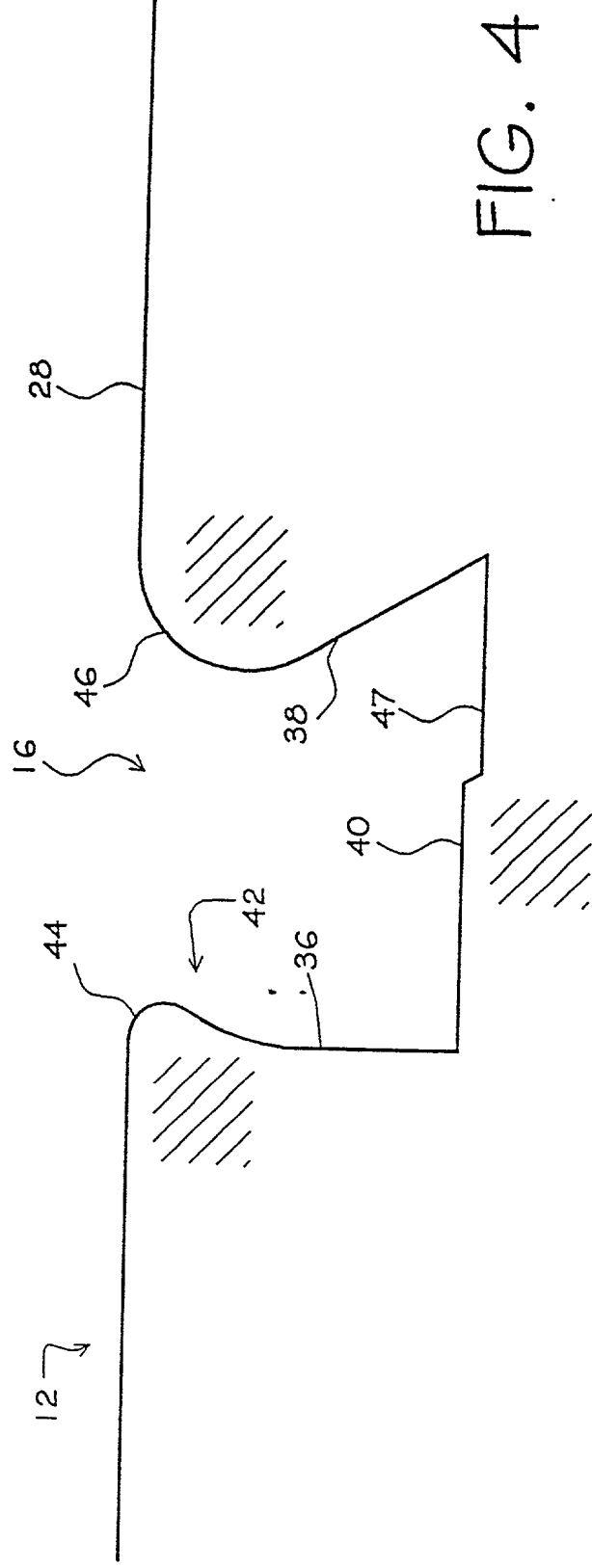
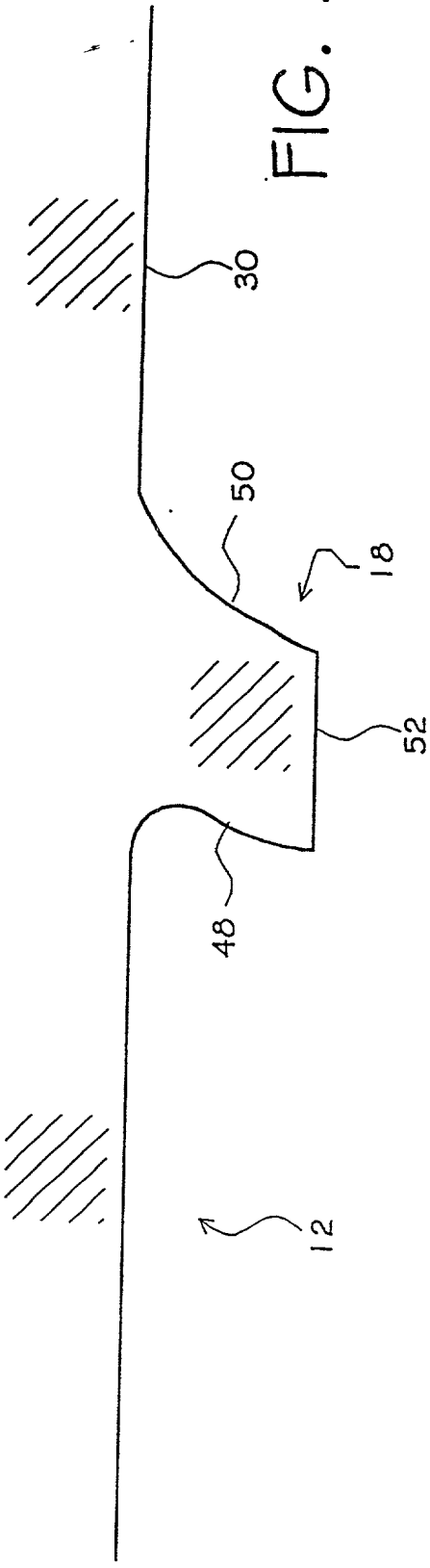


FIG. 3



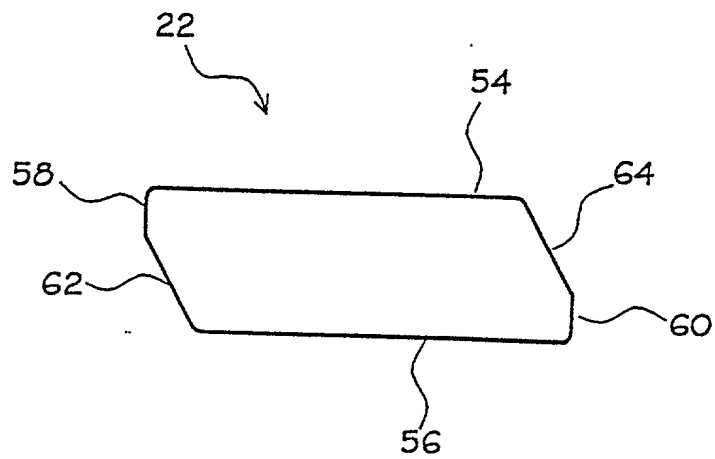


FIG. 6

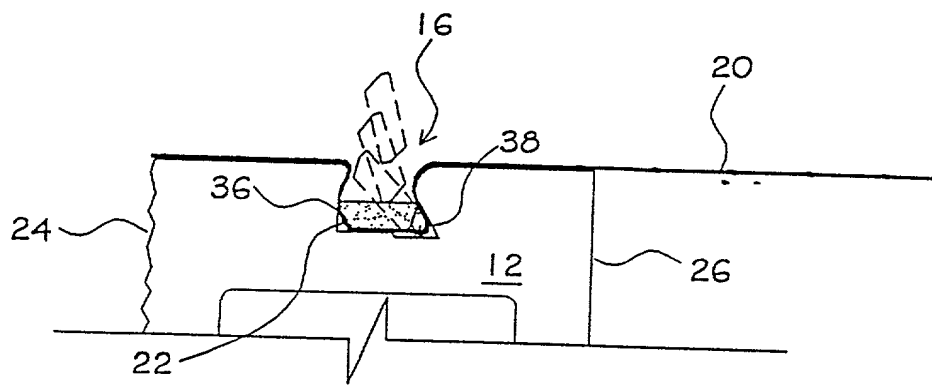


FIG. 7



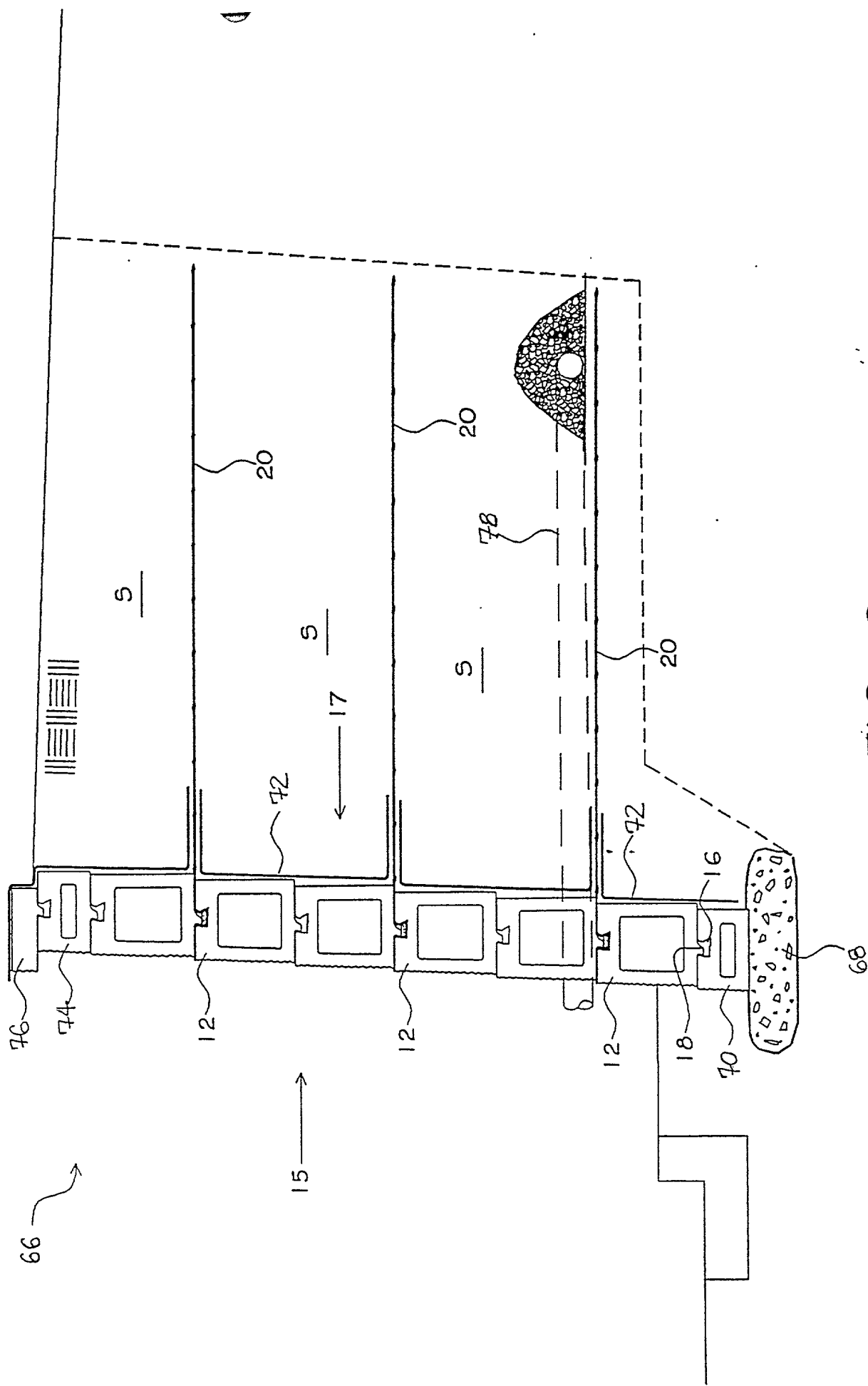


FIG. 8

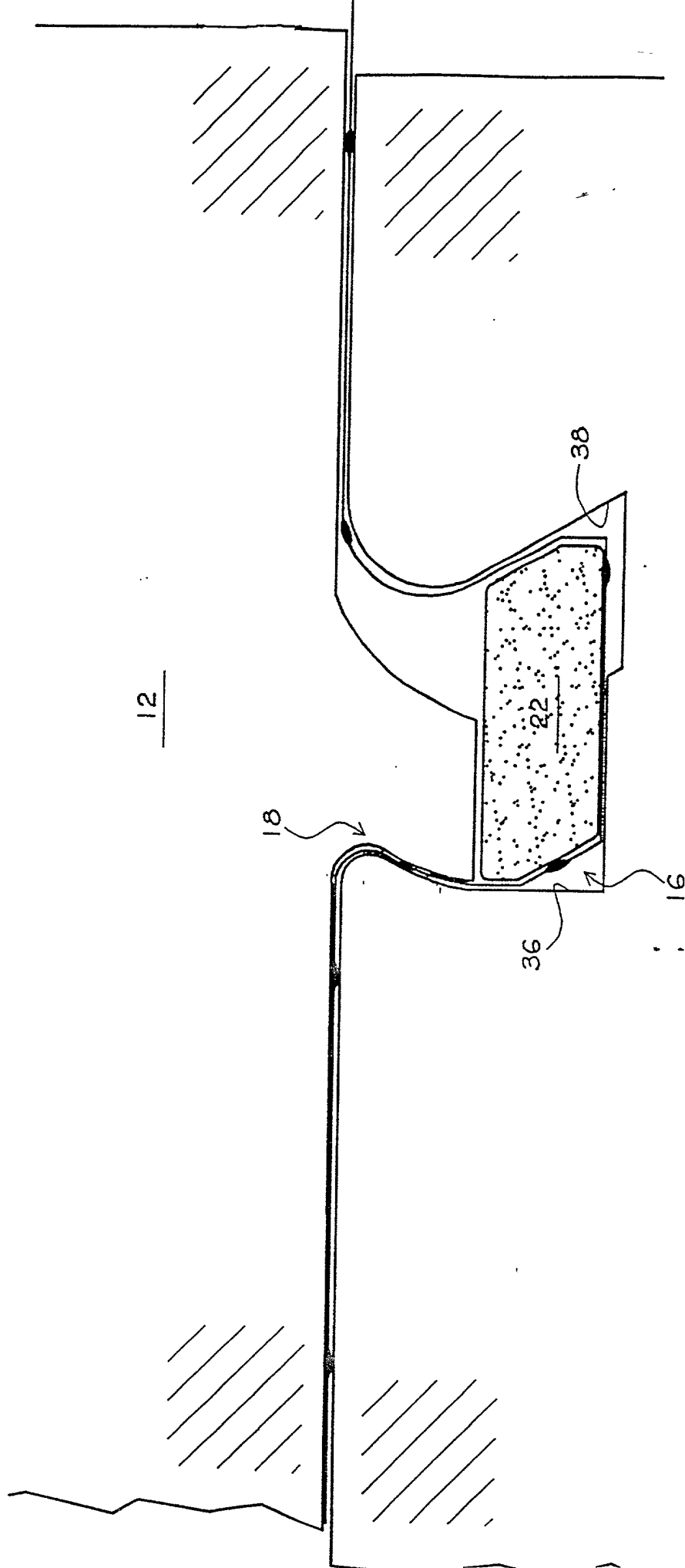


FIG. 9

**COMBINED DECLARATION AND POWER OF ATTORNEY**  
(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL,  
DIVISIONAL, CONTINUATION, OR CIP)

As a below named inventor, I hereby declare that:

**TYPE OF DECLARATION**

This declaration is of the following type: (check one applicable item below)

- ☐ original  
☐ design  
☐ supplemental

*NOTE If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part application do not check next item, check appropriate one of last three items*

- ☐ national stage of PCT

*NOTE If one of the following 3 items apply then complete and also attach ADDED PAGES FOR DIVISIONAL, CONTINUATION OR CIP*

- ☐ divisional  
☐ continuation  
☒ continuation-in-part (CIP)

**INVENTORSHIP IDENTIFICATION**

*WARNING: If the inventors are each not the inventors of all the claims an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.*

My residence, post office address and citizenship are as stated below next to my name, I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**TITLE OF INVENTION**

**SEGMENTAL RETAINING WALL SYSTEM**

**SPECIFICATION IDENTIFICATION**

the specification of which: (complete (a), (b) or (c))

- (a) ☒ is attached hereto.
- (b) ☐ was filed on [DATE] as Serial No. \_\_\_\_; or  
☐ was filed on [date], under Express Mail No. \_\_\_\_, as Serial No. not yet known, and was amended on \_\_\_\_ (if applicable).

*NOTE Amendments filed after the original papers are deposited with the PTO which contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 CFR 1.67*

- (c) ☐ was described and claimed in PCT International Application No. \_\_\_\_; filed on \_\_\_\_ and as amended Under PCT Article 19 on \_\_\_\_ (if any).

093913 06499  
664290 216260

## ACKNOWLEDGMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information

- ☒ which is material to patentability as defined in 37, Code of Federal Regulations, § 1.56;  
(also check the following items, if desired)
- ☒ and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent; and
- ☐ In compliance with this duty, there is attached an information disclosure statement in accordance with 37 CFR 1.98.

## PRIORITY CLAIM (35 U.S.C. § 119)

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

- (d) ☒ no such applications have been filed
- (e) ☐ such applications have been filed as follows

NOTE Where item (e) is entered above and the International Application which designated the US claimed priority check item (e), enter the details below and make the priority claim.

### A. PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS APPLICATION AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119

Country (or Indicate if PCT)	Application Number	Date of Filing (day/month/year)	Priority Claimed Under Section 37 USC 119
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO

**ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS  
(6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

NOTE

*If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR CIP APPLICATION for benefit of the prior U.S. or PCT application(s) under 35 U.S.C. § 120*

**POWER OF ATTORNEY**

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (List name and registration number)

Scott A. Horstemeyer, #34,183  
George M. Thomas, #22,260  
Stephen R. Risley, #35,659

James W. Kayden, #31,532  
Jeffrey R. Kuester, #34,367  
David R. Risley, #39,345

(check the following item, if applicable)

- ☐ Attached as part of this declaration and power of attorney is the authorization of the above-named attorney(s) to accept and follow instructions from my representative(s).

**SEND CORRESPONDENCE TO**

**David R. Risley**  
**THOMAS, KAYDEN, HORSTEMEYER**  
**& RISLEY, L.L.P.**  
Suite 1500  
100 Galleria Parkway N.W.  
Atlanta, Georgia 30339

**DIRECT TELEPHONE CALLS TO:**

**David R. Risley**  
(770) 933-9500

**DECLARATION**

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

**SIGNATURE(S)**

**NOTE:** Carefully indicate the family (or last) name as it should appear on the filing receipt and all other documents.

**Full name of sole or first inventor****Thomas****L.****Rainey**

Inventor's signature

Date:

6/24/99Country of Citizenship U.S.AResidence: 3275 Kates Way, Duluth, GA 30155Post Office Address: 3275 Kates Way, Duluth, GA 30155

604090" 24.66660

CHECK PROPER BOX(ES) FOR ANY OF THE FOLLOWING ADDED PAGE(S)  
WHICH FORM A PART OF THIS DECLARATION

☐ Signature for subsequent joint inventors. Number of pages added  
\_\_\_\_\_.

\* \* \*

☐ Signature by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor. Number of pages added  
\_\_\_\_\_.

\* \* \*

☐ Signature for inventor who refuses to sign or cannot be reached by person authorized under 37 CFR 1.47. Number of pages added  
\_\_\_\_\_.

\* \* \*

☒ Added pages to combined declaration and power of attorney for divisional, continuation, or continuation-in-part (CIP) application.

☒ Number of pages added 2

\* \* \*

☐ Authorization of attorney(s) to accept and follow instructions from representative.

\* \* \*

**If no further pages form a part of this Declaration then end this Declaration with this page and check the following item**

☐ This declaration ends with this page

Attorney's Docket No. 51810-1050

**ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY  
FOR DIVISIONAL, CONTINUATION OR CIP APPLICATION**

*(complete this part only if this is a divisional, continuation or CIP application)*

**CLAIM FOR BENEFIT OF EARLIER U.S./PCT APPLICATION(S) UNDER  
35 U.S.C. 120**

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international applications(s) designating the United States of America that is/are listed below, and insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information that is material to the examination of this application, namely, information where there is substantial likelihood that a reasonable Examiner would consider it important in deciding whether to allow the application to issue as a patent, which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application.

PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 USC 120:					
U.S. APPLICATIONS		STATUS (Check One)			
U.S. APPLICATIONS	U.S. FILING DATE	Patented	Pending	Abandoned	
1 09/049,627	March 27, 1998		X		
2					
3					
PCT APPLICATIONS DESIGNATING THE U.S.					
PCT Application No.	PCT Filing Date	U.S. Serial Nos. Assigned (if any)			
1.					
2					
3					

(Added Page to Combined Declaration and Power of Attorney for Divisional, Continuation or CIP Application [1-2.1] - page 1 of 2)



**35 U.S.C. 119 PRIORITY CLAIM, IF ANY, FOR ABOVE LISTED  
U.S./PCT APPLICATIONS**

ABOVE APPLICATION NO.	DETAILS OF FOREIGN APPLICATION FROM WHICH PRIORITY CLAIMED UNDER 35 USC 119		
	Country Application No.	Date of Filing (day, month, year)	Date of issue (day, month, year)
1			
2.			
3.			
4.			
5.			
6.			

AddPages-Declaration.doc

(Added Page to Combined Declaration and Power of Attorney for Divisional, Continuation or CIP  
Application [1-2.1] - page 1 of 2)